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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,006

05/30/2006

Jorg Peter

3425

1382

7590

09/26/2007

Walter A Hackler  
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EXAMINER

PATEL, VISHAL A

ART UNIT

PAPER NUMBER

3673

MAIL DATE

DELIVERY MODE

09/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/551,006

Applicant(s)

PETER ET AL.

Examiner

Vishal Patel

Art Unit

3673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/29/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8, lines 1-4, "in that...shells", unclear how the inner surface has recesses and also at the same time microstructures. For examination purpose the inner surface having recesses are microstructures.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franson et al (US. 5,127,661) in view of Weinand (US. 3,656,227).

Franson discloses a sealing arrangement for hydraulic pistons or piston rods, comprising a U-cup (e.g. 78) of a viscoplastic synthetic material, a stationary machine part (e.g. 68) and a movable machine part (e.g. 84) with an outer radius R (Radius of 84), the U-cup (e.g. 78) is disposed as a contacting joint under radial pre-stress between the stationary machine part and the movable machine part in a profiled section (e.g. groove in 68 holding the U-cup) of the

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stationary machine part, the U-cup has a radially outer lip (e.g. 100) and a radially inner sealing lip (e.g. 92) on the high-pressure side, the stationary and the movable machine parts are separated on the low-pressure side by a sealing gap (e.g. gap near 80 between 68 and 84) of a sealing gap width B, wherein an abutment surface (e.g. 88) of the U-cup abuts a radially oriented region (e.g. back wall of the groove) of the profiled section on the low-pressure side, wherein the U-cup has an inner radius (inner radius of 78) and an outer radius (outer radius of 78), both in the unpressurized state and in the pressurized state, the inner radius of the U-cup in the region of the abutment surface is larger than the sum of R and B (figures 2 and 4) and the U-cup comprises an inner surface (e.g. inner surface of 92) facing the movable machine part. In the unpressurized state, the inner radius of the U-cup decreases (figure 4 shows that the inner radius decreases continuously), in particular continuously, from the low-pressure side towards the inner sealing lip (e.g. 92) in a region around the abutment surface. In the unpressurized state, the inner radius of the U-cup decreases continuously, in particular like a cone (cone shaped defined on the inner radius as shown in figure 4), from the low-pressure side N towards the inner sealing lip (e.g. 92) in a region from the abutment surface to the inner sealing lip. In that the U-cup has an outer surface (outer surface having 102) facing away from the movable machine part, the outer surface is curved concavely (concave surface after 102) in the unpressurized state.

Franson discloses the invention substantially as claimed above but fails to disclose that the inner surface comprising several lubrication bore relief that are recesses and the recesses each extend in an axial direction from the low pressure side of the U-cup toward the inner sealing lip, and the radial depth of the individual recesses decreases from the low-pressure side of the U-cup toward the inner sealing lip. Weinand teaches a sealing member having a lip (e.g. 114), the lip

having an inner surface (surface having recesses 80), the inner surface having recesses, the recesses extend from an air side (air side opposite 142), the recesses having a radial depth that decrease from the air side to the lip (the greatest depth of the recesses is shown near phantom line 36 which decreases from air side toward the lip, figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the inner surface of the lip of Franson to have recesses as taught by Weinand, to provide lubricant return and a film to reduce wear (inherent teaching of recesses on a lip).

5. Claims 4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franson and Weinand as applied to claims above, and further in view of Haberkorn (US, 3,189,359).

Regarding claims 4 and 6-7: Franson and Weinand fail to disclose that the outer and inner surface near the abutment surface is convex. Haberkorn teaches a seal having a U-shape having an abutment surface (12) and inner surface and outer surface (21 and 22) adjacent to the abutment surface that are convex like a circular arc (the surface 22 and 21 are convex). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the outer and inner surface of Franson and Weinand to be convex as taught by Haberkorn to provide proper sealing under high-pressure (column 3, lines 40-43 of Haberkorn).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Doult, Otto, Johnston and Workman.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is 571-272-7060. The examiner can normally be reached on 6:30am to 8:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on 571-272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VP  
September 15, 2007

A handwritten signature in black ink, appearing to read 'Vishal Patel', with a stylized flourish at the end.

Vishal Patel  
Patent Examiner  
Tech. Center 3600